BCCAMPUS: CREATING A SUSTAINABLE ONLINE LEARNING CONSORTIUM

By David Porter

Universities and colleges across Canada, and indeed globally, have initiated large and small-scale projects to implement online learning consortia - associations of two or more institutions with the objective of participating in a common activity or pooling their resources for achieving a common goal[1]. Once equipped with the needed information and communications technologies, they form these alliances in order to bring post-secondary educational opportunities directly to learners.

Various academic, social, or workplace development needs motivate such consortia initiatives. Some consortia have been initiated as for-profit business ventures. The impetus for other initiatives has come from systemic pressures to:

- more fully utilize public education opportunities
- provide increased access to higher education for under-served populations, or
- increase learner mobility in competitive employment environments.

In all cases, the long-term success of such ventures is yet unproven. Sustainability is unexplored terrain.

Governments, funding agencies, and institutions strive to understand and control all the factors that affect the success of large-scale consortia projects in which they have invested. Few recorded successes have endured. Indeed, few of the key success factors for the sustainability of online learning consortia have been identified. None have been understood sufficiently to be controlled or manipulated in a manner that might guarantee the sustained productivity of such initiatives from the outset.

This is an issue that we are facing in British Columbia as we move BCcampus.ca from a project to an operational entity. BCcampus is a government-initiated collaborative venture. Its aim is to network all of British Columbia's public post-secondary institutions in a manner that allows learners to find and engage in online learning opportunities across this entire educational sector.

The BCcampus concept was designed to benefit students of our public post-secondary institutions by providing them with a set of online service features and functions that promote access, choice, flexibility, and mobility. The anticipated user experience is meant to resemble what students might expect if they were to connect to consumer-based services on the Internet. Immediacy, responsiveness, and high levels of customer service are hallmarks of contemporary Web-based consumer applications.

This paper explores the value propositions and sustainability factors driving BCcampus, a consortium of twenty-six public post-secondary institutions in British Columbia. It describes how the project began and the steps taken by its management team to build an inclusive, portalized infrastructure to service the needs of students, educators, and academic institutions. We also invite your feedback on this paper through the BCcampus blog:
http://knowledgewranglers.typepad.com/blog_bccampus/

Leveraging Resources through Partnerships

In strategic collaboration terms, BCcampus is a propositional collaboration[2] , a visionary approach to a business structure (academic services in this case) based upon predicted or assumed value to the parties involved. The BCcampus project stemmed directly from our Ministry of Advanced Education's vision and goal to enhance connectivity among our BC academic institutions so that their capabilities in research, instructional delivery, and student service would increase. In this context, BCcampus was aimed at providing a layer of unifying software services for students wishing to take programs and courses from institutions across the higher education sector. BCcampus was created to enhance students' ability not only to identify, choose, register for, and take courses but also to apply any academic credits earned against credentials from a selected home institution. While providing students with measurable

[1] *Wikipedia (2006). Consortium. Retrieved from http://en.wikipedia.org/wiki/Consortium*

[2] *Cardell, S. (2003).* Strategic collaboration: creating the extended organization. *Oxford University Press Canada.*

value—namely, online course spaces available from all institutions—the collaboration was also intended to benefit institutions through the rationalization of demand for academic opportunities from students with the supply of online courses from BC public post-secondary institutions.

Leveraging resources through partnership is not a new concept for academic institutions, particularly in areas where they do not compete or where the aggregation of resources effectively lowers costs for all. In British Columbia, BCNet[3] serves as an example of universities working together with government to plan and operate the technical infrastructure for a high-speed network in a manner that benefits the expanding needs of researchers. In a similar fashion, the Provincial Learning Network (PLNet) provides an approach to technical infrastructure for colleges, libraries, and the British Columbia K-12 system in a manner that keeps network costs predictable and service levels uniformly high. The BC Electronic Library Network (ELN)[4] also provides systemic access to academic research resources through its shared services approach for higher-education institutions. For students and parents, the BC Council on Admission and Transfer (BCCAT)[5] through its Education Planner website provides an information resource about the details of program requirements and transfer regulations across the BC higher education system.

However, in areas where academic institutions compete or where "brand" plays an important role - such as in the recruitment, admission, and registration of students - partnerships and strategic collaborations have typically been more difficult to develop and sustain. And, because propositional collaborations are based upon visionary goals rather than identified need, their development and nurturing require a more focused approach to mitigate risk and to underscore the importance of cultural fit. In such cases, the prerequisite is the same for both active participation and persistence: the identification of *resonant value*[6] from the perspective of each institution. From its end, BCcampus must ask: "Which critical need for College X is met by one or more of the many benefits that BCcampus brings students, educators and the post-secondary system?" The type and extent of this need fulfillment is the value proposition for that institution.

BCcampus explored the power of resonant value during the first year in which the consortium administered the awarding of grants for reusable online resource development from the provincial Online Program Development Fund. On bringing the successful grant proponents into a community of practice, BCcampus surfaced their concerns around copyright and reuse. A disconnect became apparent between the tools available in the proposed Creative Commons[7] licensing scheme and the requirement by some institutions and faculty members for more tightly controlled copyright and licensing of creative works.

The norm was to preserve an institution's competitive advantage in its marketing of programs and courses beyond the borders of British Columbia. While many institutions supported the spirit of the Creative Commons model, and especially the concept of permitting reuse and reengineering of content by institutions and faculty members within BC, some institutions and developers cited a need to preserve a competitive advantage for their institution.

To fulfill this essential requirement, the BC Commons license was designed. Its resonant value was to ensure that reuse was preserved within BC but that marketing and sale of courseware could remain an exclusive revenue stream for institutional developers when they marketed learning resources and programs outside of BC.

Identifying Substantive Systemic Value Propositions: For Students, Educators, and Institutions

The nature of the value proposition as it relates to active participation in collaborative ventures varies from institution to institution. We have found that simply advocating for a collaborative enterprise is not enough even when—

- Support is evident at the highest levels of institutional administration.
- It makes sense for students.
- The underlying model supports and protects institutional autonomy.
- Funding is available to make the infrastructure for collaboration a reality.

At BCcampus we have therefore taken bold steps to build a collaborative infrastructure—one possessing inherent and measurable value for institutions—that is both student- and educator-facing by virtue of its Web technology.

Identifying value propositions that would compel institutions to actively participate with BCcampus has been a multi-year process involving student service, technical, and academic staff from institutions.

[3] *BCNet. http://www.bc.net*
[4] *ELN (2006). Electronic Library Network. http://www.eln.bc.ca/*
[5] *BC Council on Admission and Transfer (2006). Education planner. . http://www.educationaplanner.ca/*
[6] *Anderson, J.C., Narus, J.A., & van Rossum, W. (2006). Customer value propositions in business markets.* Harvard Business Review. *March 2006.*
[7] *Creative Commons (2006). http://www.creativecommons.org*

Our institutional partners want to provide enhanced services for their students, but they also want to ensure that—

- Their academic regulations are met.
- Efficiencies can be realized within their own environments.
- Security and privacy issues are satisfied.
- Communication and branding issues remain within their domain.
- Business rules that may be unique to their institution are not lost in the implementation of a collaborative venture with system partners.

For BCcampus, the challenge in working with institutions has been to achieve a balance between satisfying the individual needs of institutions and preserving their established online business practices, while instituting a set of uniform processes that could benefit the post-secondary system as a whole.

Making the collaboration a reality means interconnecting the varied student information systems (SIS) of all public post-secondary institutions through a Web-services[8] approach. A common interface then brings together information relating to course availability, transfer requirements, admission, registration, and course delivery. In instances where a layer above the interface is needed, institutional channels can be customized.

In either case, students can make informed choices and take action in real time. A conceptual representation of the BCcampus service infrastructure appears in Figure 1.

Since its inception in 2002 and first operations in 2003, BCcampus has been able to demonstrate increasing usage of the application and registration services that the BCcampus portal facilitates. Growth of registrations facilitated by BCcampus has risen from 30% growth per year in 2004 to 50% growth in 2006, with over 15,000 enrolments facilitated in online courses from BC post-secondary institutions. The online application system managed by BCcampus has recently completed an automated connectivity model with all post-secondary institutions, opening a pathway for more sophisticated online transactions between institutions and the potential for new online applications to be developed that can benefit collaborative models of practice.

From the beginning, students have been clear about what they seek from an agile academic portal to online learning opportunities within British Columbia. Data have been analyzed from yearly surveys with students in online programs and courses facilitated by BCcampus and partner institutions. This analysis has highlighted a set of services (Figure 2) that form the core of the initial BCcampus service development plan.

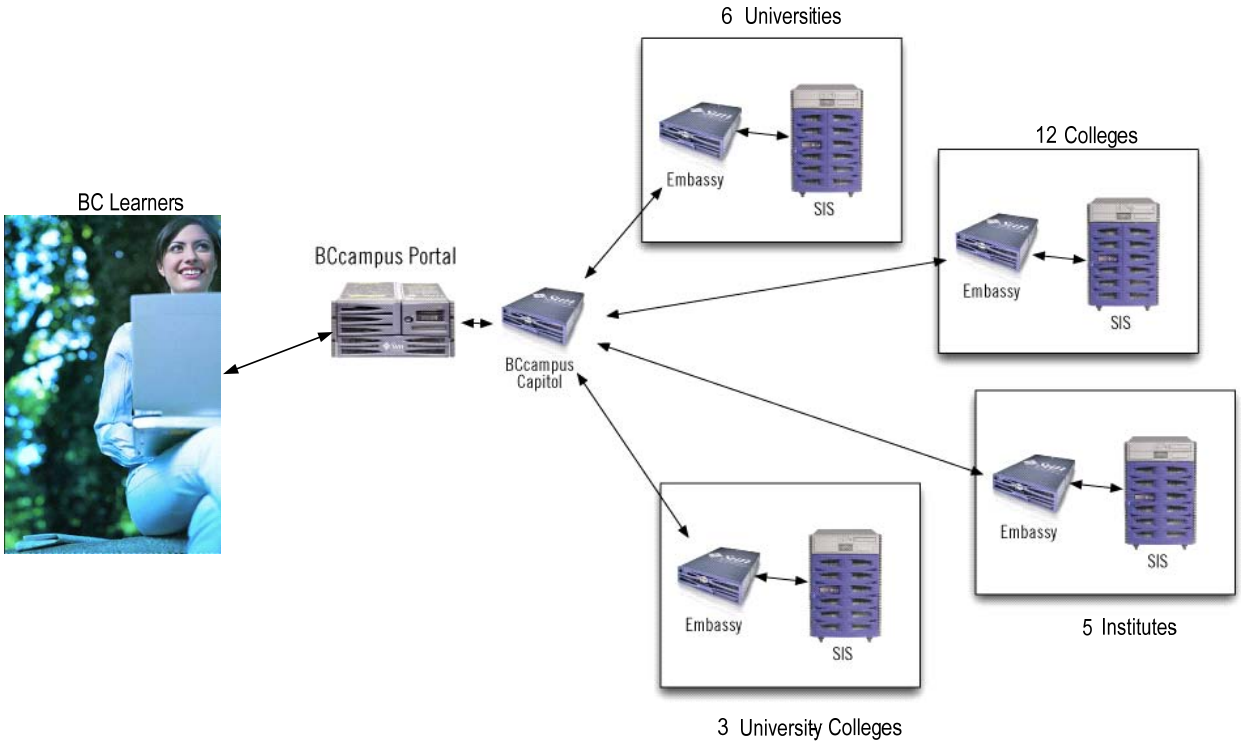

Figure 1. Conceptual diagram of BCcampus service infrastructure.

[8] *Wikipedia (2006). Web services.* http://en.wikipedia.org/wiki/Web_services

Some of the core student services currently exist: for example, an online application service, the Provincial Application Service of British Columbia (PASBC)[9] is operated by BCcampus. However, to make PASBC fully functional and to meet the needs of all institutions, a first step for BCcampus was to ensure that all twenty-six BC institutions were connected to PASBC for fully automated data transactions—a goal that was accomplished in 2006.

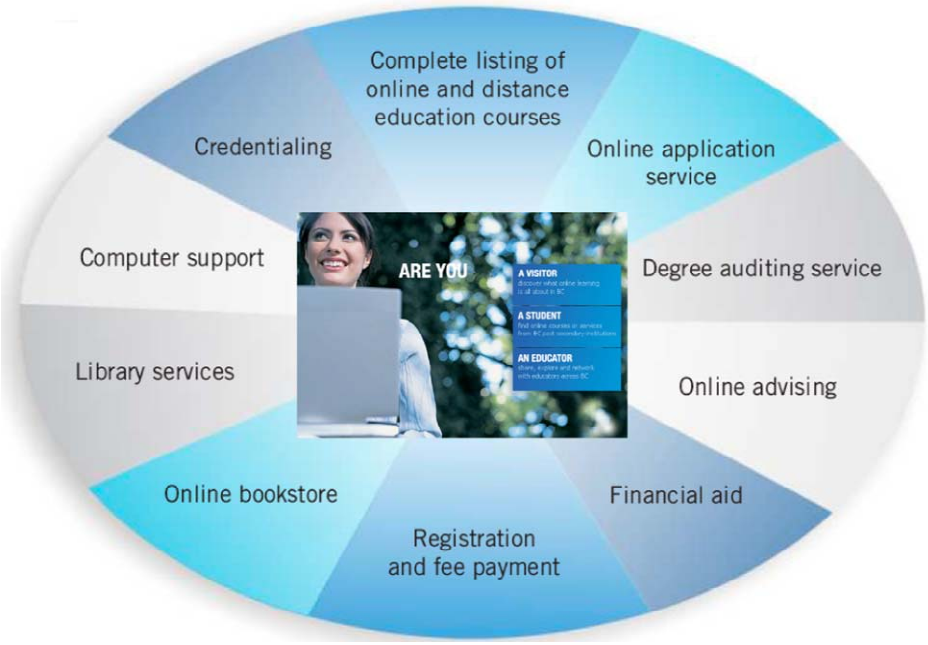

Figure 2. Proposed BCcampus service development channels.

A specific service identified by students—a degree auditing service—is an extremely useful tool but also a highly complex service to develop that will probably take multiple years for full realization. Nonetheless, such services are the online tools that students would find critical as they make informed choices about the programs and courses in their academic or career development plans.

Other services are fundamental: the basic requirement for an agile and workable academic portal. These comprise a dynamically updated course finder, registration and fee payment systems, library services, and computer support systems. We have found that students are willing to wait for a degree auditing system if they can have timely access to reliable, real-time core services. For students, the value proposition is found in the efficiency with which they can plan and execute the service activities related to their academic plans.

[9] *BCcampus (2006). Provincial application service of British Columbia.* http://www.pas.bc.ca

BCcampus Pilot Project: A Case Study

As a starting point, a pilot project enlisted four institutions representing two different vendor implementations of student information systems. Stakeholder groups including registrars, information technology (IT) staff, and academic staff were involved in planning and designing a model of practice that could be automated through Web services. The criterion of success was that their solution had the potential to be implemented across twenty-six institutions in British Columbia.

As is likely also in other jurisdictions, the level of development and customization of academic business processes and technical systems differed considerably across the four pilot institutions. The technical designers for BCcampus (including registrars, IT staff, and software developers) took the approach of defining a set of core transactions that were fundamental to the business rules associated with validating a "visiting student" model. This is a model in which a student from a designated home institution could be authenticated to:

- See course offerings and available seats at partner institutions
- Indicate a request to register
- Authorize their academic records to be passed to the teaching institution
- Then, take a selected course if all approvals were granted.

In the background, record passing between institutions would be handled by automated transactions for fee payment, grade and transcript transfers, and other SIS record keeping.

Within the BCcampus pilot institutions there was variance in the degree to which individual institutions wanted to automate approval processes. At one extreme was a desire for fully-automated processes involving nine student service transactions; at the other was a requirement for manual approvals and interventions by staff examining queued requests from students. Even among the partners in the pilot project, issues surfaced and differential approaches were taken to the implementation of automated Web services. Institutions viewed the potential value of the automated services for

students to their institutions in different ways that required further analysis of Web service assumptions by the designers during the pilot project evaluation.

Contemporary research about the nature of collaborative practices within high-performance organizations suggested that the issues surfaced within the BCcampus pilot project are not uncommon. What tends to work best in collaborative ventures is keeping technology-based solutions as open and as simple as possible.

A relevant trend was emerging as our pilot went ahead: the use of loosely-coupled Web service components based upon common standards to enhance widespread compatibility and adaptability. This was clearly preferable to engineering custom solutions that tended toward static efficiency[10].

A mid-term evaluation of the pilot project by the participants resulted in a recommendation to simplify and standardize a minimum set of transactions. The criterion for inclusion in this set was the predictability of straightforward efficiencies for both students and institutions as the Web services model was rolled out to additional institutions across British Columbia.

From the pilot project emerged additional insights into strengthening the development and implementation model for BCcampus. Improvements in the identification, communication, and demonstration of resonant value in the connectivity process for post-secondary institutions became an increased focus. Foremost among value propositions for institutions was that BCcampus was engineering a secure means by which student data from the provincial electronic admission system could be passed directly into institutional student information systems.

The value in this transaction has the potential to increase even more as a planned enhancement goes into effect—that of providing electronic transcript data from the K-12 Ministry of Education directly to the post-secondary institutions as part of the online admissions process.

Notwithstanding the efficiencies and enhancements that these service connections provide, new opportunities also emerge from a full connectivity model. When students use a common admission system to provide data to post-secondary institutions on their proposed academic trajectories, a store of academic "demand data" emerges. This should help institutions to improve the planning of their program offerings and the availability of courses and sections to meet student needs.

The management of online course supply across the post-secondary system and its visual display to students afforded by BCcampus is gaining profile as a benefit to educational institutions.

Our hindsight view of this benefit may well be that without supply-demand aggregation afforded by the BCcampus portal, no systemic basis for managing uniform access to online learning opportunities would have been sustainable.

Further insights have also emerged from the BCcampus pilot project that will help the management team to better understand the human dimensions of a large-scale collaborative enterprise. The heart of the human systems required for success in a propositional collaboration such as BCcampus are consensus-building, community-development, and team-building. Many of the strategies adopted by the BCcampus project team have been adopted and adapted from the self-organizing principles of management that characterize the Open Source Software (OSS)[11] and the Open Educational Resources (OER)[12] communities.

A key strategy for BCcampus is working with reference groups from stakeholder communities within the post-secondary system: experts in registration processes, IT systems, advising, financial aid, library services, computer support, and other specialties. Working with these internal experts ensures that best-practice knowledge from within the post-secondary system is considered alongside best practice from the Web world. Implementation of test systems and subsequently their evaluation by students then becomes the true test of the design viability. As institutions add to their own set of best practices in this fashion, they reap another recognized benefit of collaboration via communities of practice: increasing the knowledge within individual organizations.

To support open and transparent communication and reporting, BCcampus uses a wiki-based documentation and issue management system. The consequent visibility of project development work encourages project participants to commit fully to identifying and resolving issues.

[10] *Evans, P. and Wolf, B. (2006). Collaboration rules.* Harvard Business Review, *July-August 2005.*

[11] *von Hippel, E. & von Krogh, G. (2002).* Exploring the open source software phenomenon: Issues for organizational science. *MIT Sloan School of Management.* http://opensource.mit.edu/papers/hippelkrogh.pdf

[12] *Wikipedia (2006). Open educational resources. Retrieved from* http://en.wikipedia.org/wiki/Open_educational_resources

Reporting Success

The tools of the wiki-based system give participants the means to filter, abstract, summarize, and report on implementation progress to their colleagues in self-service manner.

Further, and rather than using an annual report to document its progress, BCcampus has adopted a real-time Web-based reporting system developed by a Vancouver company that specializes in the planning and reporting processes associated with sustainable business practices.

Using the see-it™ Social-Environmental-Economic Integration Toolkit[13], BCcampus has developed its service plan for 2006-2008 along with providing real-time transparent access to its progress and success metrics and measures. Examples of screens from BCcampus the see-it™ reporting system are shown in Figure 3.

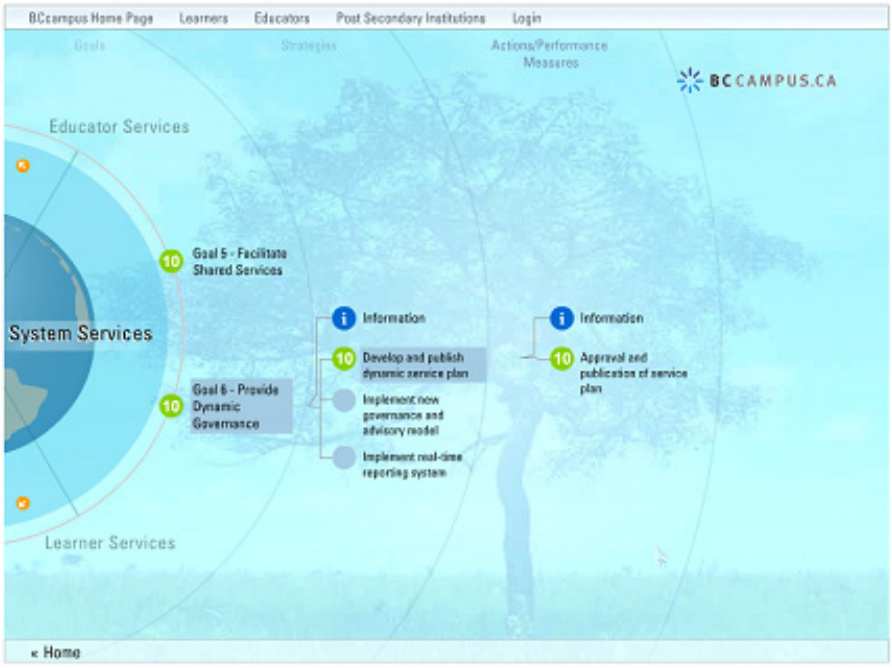

Figure 3a. Online, real-time reporting system adopted by BCcampus showing goals and tasks.

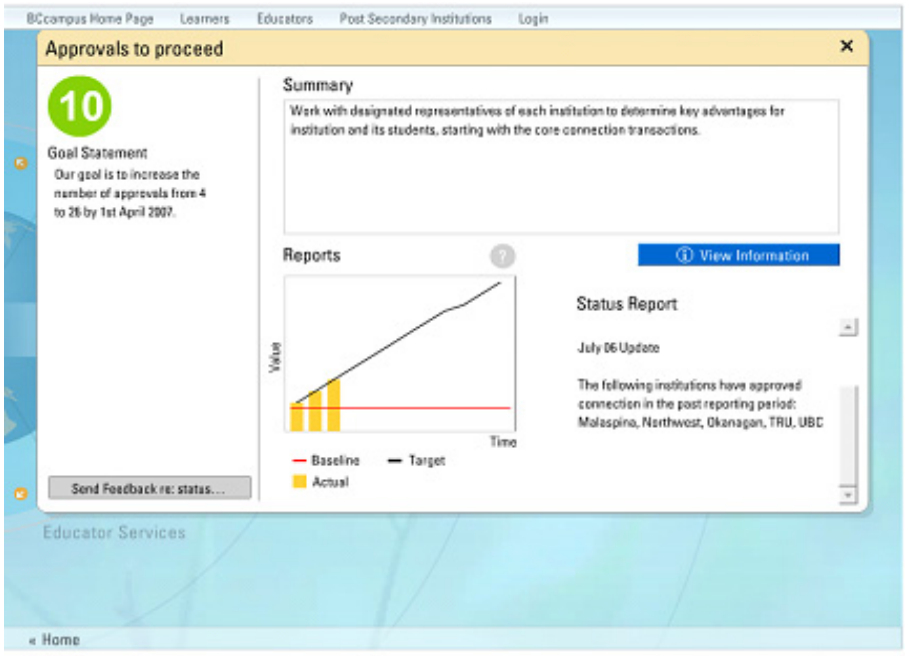

Figure 3b. Online, real-time reporting system adopted by BCcampus showing metrics and measures.

[13] *Real-Living Solutions Inc. (2006).* see-it™ Social-Environmental-Economic Integration Toolkit. http://www.real-livingsolutions.com

In Search of Congruence

While BCcampus aims to provide adequate value for both learners and system institutions, it needs to ensure that it systems and services are congruent with educator needs as well. Figure 4 shows the conceptual relationship between the BCcampus portal and its connections to core systems that are aggregated within the portal.

BCcampus has also been proactive in developing a learning object repository (http://solr.bccampus.ca) to host the reusable content, tools, and resources that were funded by the BCcampus Online Program Development Fund (OPDF)[14].

What is not shown in the diagram but what is also connected to the portal are the existing Web-based systems and services within BC that are freely available without authentication. Additionally BCcampus provides shared system access to learning management systems, including WebCT and Moodle, and is currently developing a shared service approach with system partners to support educator access to social software systems such as blogs, wikis, e-portfolio, and other emerging social software tools.

Figure 4 is designed to show the systems that are accessible through fully-authenticated and secure membership in BCcampus by learners, educators, and system institutions.

Other papers authored by BCcampus staff[15] discuss the significance of specific components of the interconnected architecture that is being built to support the online learning program and course offerings from BC's twenty-six public post-secondary institutions.

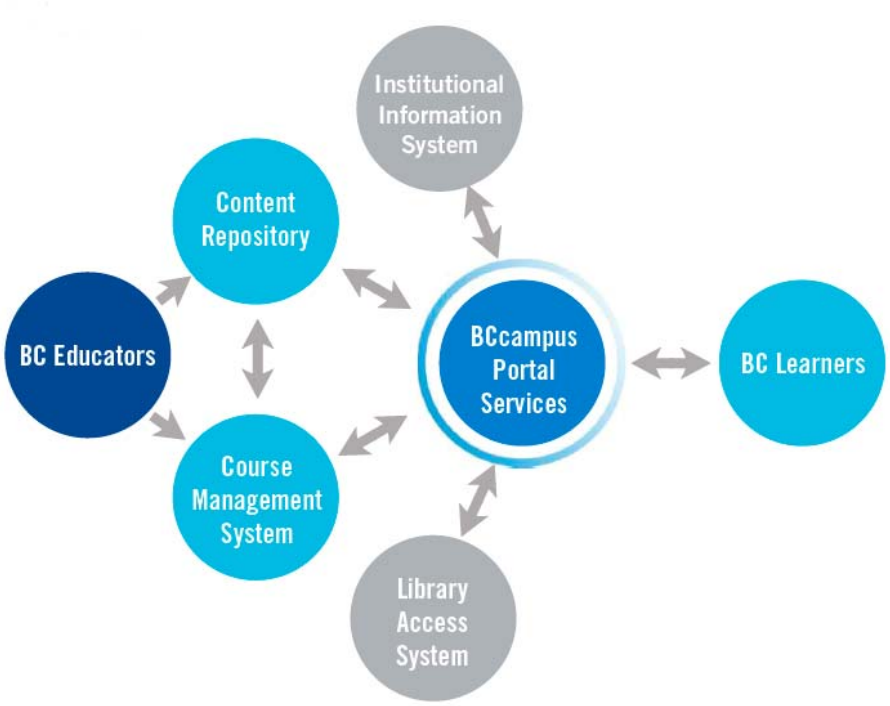

Figure 4. A conceptual map of the core services available to learners, educators, and institutional members of BCcampus.

[14] *BCcampus (2006). Online program development fund.* http://www.bccampus.ca/EducatorServices/CourseDevelopment/OPDF.htm

[15] *Stacey, P. (2006). Open for innovation.* http://www.bccampus.ca/Assets/Educator+Services+Reports/Open+for+innovation.pdf

Defining Persistence and Developing Sustainable Value

Throughout the BCcampus development and implementation process we have been aware of the risks associated with a propositional collaboration, and the importance of cultural fit as a factor that can move a project on the path towards success. Our staff has consistently sought out opinion and knowledge from internal and external experts.

We have tried to model the emerging tenets of the Open Source Software culture, where agility, transparency, and openness are valued cultural traits. Accordingly, we have instituted real-time reporting about our development processes and implementation plans using a Web-based approach to provide system partners and also the public with real-time data on the functionality and effectiveness of BCcampus.

In summary, we have observed through our experience in implementing a complex, multi-institutional collaboration that in order to build a sustainable and persistent model we must:

- Identify, communicate, implement, and measure, and report value propositions for all members of the BCcampus ecosystem (learners, educators, system partners)
- Involve key reference groups in setting goals for system development, evaluation, and implementation
- Use contemporary and flexible technical approaches to system development and integration, and avoid custom solutions that become static with time
- Conduct active, small-scale pilots with all technical systems and processes
- Evaluate and acknowledge all successes and shortcomings of technical systems, and quickly move successful implementations into wide-scale production
- Acknowledge that as a management team we are not ultimately responsible for systemic success and sustainability. The members of the BCcampus ecosystem are.

From a BCcampus perspective, it is our belief that we are architecting and engineering efficient and effective technical systems and processes that provide resonant value for learners, educators, and system partners as they expand their use of online learning services.

At BCcampus are aiming to build an academic portal with the supply aggregation finesse of an Expedia or Amazon and the security features of Interac. More services to students, more courses for learners, more (reusable) resources for educators, more students for institutions, more mobility for students between programs and across system institutions—all add up to a set of value propositions that can be both demonstrated and measured in an open and transparent manner that should validate any definition of persistence and sustainability, and become a structural underpinning for the Campus 20/20 initiative of the Ministry of Advanced Education.

We invite your feedback on this paper at the BCcampus blog:
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David Porter
Executive Director, BCcampus
dporter@bccampus.ca